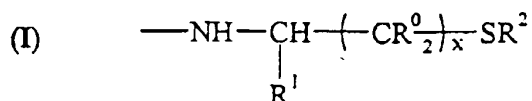


WHAT IS CLAIMED IS:

22. A means for preventing post-surgical adhesions, characterized in that it comprises at least one collagenic peptide which is modified by grafting free or substituted thiol functions, which is crosslinkable and/or at least partly crosslinked and the thiol functions of which are provided by mercaptoamino residues exclusively grafted onto the aspartic and glutamic acids of the collagenic chains, via amide bonds.

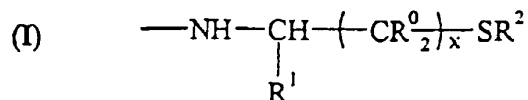
23. The means according to claim 22, characterized in that at least some of the modified collagenic peptide is in the form of a precursor A onto which are grafted mercaptoamino residues bearing substituted thiol functions, at least some of these mercaptoamino residues corresponding to the following general formula (I):



in which:

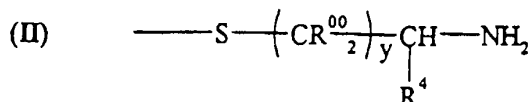
- x = 1 or 2,
- R⁰ = H or CH₃,
- R¹ represents H or COOR³ with R³ corresponding to a hydrocarbon-based radical of the aliphatic, aromatic or alicyclic type,
- R² is an aliphatic and/or alicyclic and/or aromatic radical.

24. The means according to claim 22, characterized in that at least some of the modified collagenic peptide is in the form of a precursor A onto which are grafted mercaptoamino residues bearing substituted thiol functions, at least some of these mercaptoamino residues corresponding to the following general formula (I):



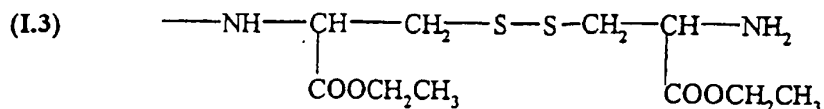
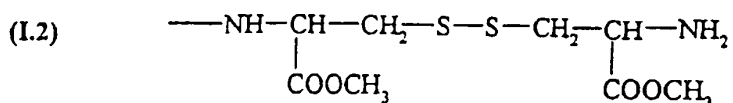
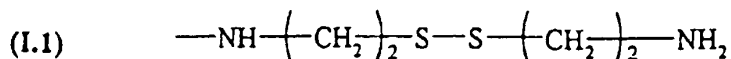
in which:

- $x = 1$ or 2 ,
- $R^0 = H$ or CH_3 ,
- R^1 represents H or $COOR^3$ with R^3 corresponding to a hydrocarbon-based radical of the aliphatic, aromatic or alicyclic type,
- R^2 corresponds to the following formula (II):



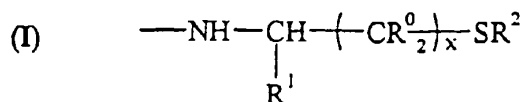
with y , R^{00} and R^4 corresponding to the same definition as that given in the legend in formula (I) for x , R^0 and R^1 .

25. The means according to claim 22, characterized in that at least some of the modified collagenic peptide is in the form of a precursor **A** onto which are grafted mercaptoamino residues chosen from the group of the following radicals:



26. The means according to claim 22, characterized in that at least some of the collagenic peptide is in a thiol-type intermediate crosslinkable precursor form **B**, onto which are grafted mercaptoamino residues, at least some of which correspond to the general formula (I)

09914424-011402
A/cont

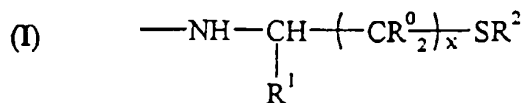


in which:

- x = 1 or 2,
- R⁰ = H or CH₃,
- R¹ represents H or COOR³ with R³ corresponding to a hydrocarbon-based radical of the aliphatic, aromatic or alicyclic type, a hydrogen or a cation capable of forming a salt with COO⁻,
- R² = H.

27. The means according to claim 22, characterized in that at least some of the modified collagenic peptide is in a crosslinked form C comprising collagenic chains attached to one another by disulfide bridges, the constituent sulfur atoms of which belong to mercaptoamino residues exclusively grafted onto the aspartic and glutamic acids of the collagenic chains, via amide bonds.

28. The means according to claim 22, characterized in that at least some of the modified collagenic peptide is in a crosslinked form C comprising collagenic chains attached to one another by disulfide bridges, the constituent sulfur atoms of which belong to mercaptoamino residues exclusively grafted onto the aspartic and glutamic acids of the collagenic chains, via amide bonds, this collagenic peptide in C form being obtained from a thiol-type intermediate crosslinkable precursor form B, onto which are grafted mercaptoamino residues, at least some of which correspond to the general formula (I)



05944424-011402
A / cont.

09074424-034403
A/cont.

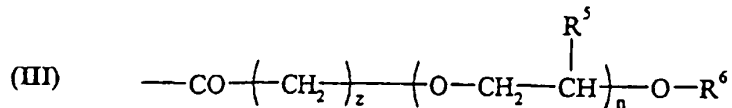
in which:

- $x = 1$ or 2 ,
- $R^0 = H$ or CH_3 ,
- R^1 represents H or $COOR^3$ with R^3 corresponding to a hydrocarbon-based radical of the aliphatic, aromatic or alicyclic type, a hydrogen or a cation capable of forming a salt with COO^- ,
- $R^2 = H$.

29. The means according to claim 22, characterized in that at least some of the collagenic peptide also carries grafts G attached to at least some of the free amine units of the collagenic chain, via amide bonds, G being an acyl comprising a hydrocarbon-based entity, EXCLUDING mercaptoamino residues.

30. The means according to claim 22, characterized in that at least some of the collagenic peptide also carries grafts G attached to at least some of the free amine units of the collagenic chain, via amide bonds, G being an acyl comprising a hydrocarbon-based entity, EXCLUDING mercaptoamino residues, this entity containing hetero atoms.

31. The means according to claim 22, characterized in that at least some of the collagenic peptide also carries grafts G attached to at least some of the free amine units of the collagenic chain, via amide bonds, G corresponding to the following formula (III):



with:

- $R^5 = H$ or CH_3 ;

- $R^6 = H$, or a linear or branched alkyl radical;
- $z = 0, 1$ or 2 and $n > 0$;

32. The means according to claim 22, characterized in that it is in the form of a film.

33. The means according to claim 22, characterized in that it comprises a composite comprising, firstly, a matrix comprising the collagenic peptide as defined in claim 1 and, secondly, a reinforcement material included in this matrix, this reinforcement being chosen from biodegradable polymers.

34. The means according to claim 22, characterized in that it comprises a composite comprising, firstly, a matrix comprising the collagenic peptide as defined in claim 1 and, secondly, a reinforcement material included in this matrix, this reinforcement being chosen from biodegradable polymers, in the form of a fibrous substance, which is woven or nonwoven.

35. The means according to claim 22, characterized in that it comprises a composite comprising, firstly, a matrix comprising the collagenic peptide as defined in claim 1 and, secondly, a reinforcement material included in this matrix, this reinforcement being chosen from biodegradable polymers, in the form of a fibrous substance, which is woven with knitted stitches.

36. The means according to claim 22, characterized in that it comprises a composite comprising, firstly, a matrix comprising the collagenic peptide as defined in claim 1 and, secondly, a reinforcement material included in this matrix, this reinforcement being chosen from α -hydroxycarboxylic acid (co)polymers.

03914424 044402
A / cont.

000144271 01103

cont.

37. The means according to claim 22, characterized in that it comprises a composite comprising, firstly, a matrix comprising the collagenic peptide as defined in claim 1 and, secondly, a reinforcement material included in this matrix, this reinforcement being chosen from polylactic acids and/or polyglycolic acids.

38. The means according to claim 22, characterized in that it comprises a composite comprising, firstly, a matrix comprising the collagenic peptide as defined in claim 1 and, secondly, a fibrous reinforcement material included in this matrix, this reinforcement being chosen from biodegradable polymers and that it is in the form of a film, the fibrous reinforcement being on only part of its surface.

39. The means according to claim 22, characterized in that it is in a nonsolid form which is crosslinkable and/or at least partly crosslinked and which can be applied and/or implantable onto and/or into a support.

40. The means according to claim 22, characterized in that it is in a nonsolid form which is crosslinkable and/or at least partly crosslinked and which can be applied and/or implantable onto and/or into a support, and comprises collagenic peptide in liquid form.

41. The means according to claim 22, characterized in that it is in a nonsolid form which is crosslinkable and/or at least partly crosslinked and which can be applied and/or implantable onto and/or into a support, and comprises collagenic peptide in the form of a gel.

42. The means according to claim 39, characterized in that it comprises at least one tool for storing and for applying into and/or onto a support, a nonsolid form of the crosslinkable and/or at least partly crosslinked collagenic

peptide which can be applied and/or implantable onto and/or into the support.

43. The means according to claim 42, characterized in that it comprises an oxidizing agent for crosslinking the collagenic peptide.

44. A process for preparing the means for preventing post-surgical adhesions according to claim 22, characterized in that it comprises the following essential steps:

1. preparing a solution, preferably an aqueous solution, of crosslinkable precursor of modified collagenic peptide;
2. molding the filtrate in the intended configuration for the means for preventing post-surgical adhesions to be prepared;
3. bring about the crosslinking,;
4. where appropriate, eliminating, with successive washes, the oxidizing agent possibly used;

45. A process for preparing the means for preventing post-surgical adhesions according to claim 22, characterized in that it comprises the following essential steps:

1. preparing a solution, preferably an aqueous solution, of crosslinkable precursor of modified collagenic peptide;
2. filtering this solution so as to extract therefrom the elements which are greater than or equal to $0.8 \mu\text{m}$, preferably greater than or equal to $0.45 \mu\text{m}$, and even more preferably greater than or equal to $0.2 \mu\text{m}$ in size;
3. molding the filtrate in the intended configuration for the means for preventing post-surgical adhesions to be prepared;
4. gelling the molded solution, in a maturation phase, by decreasing its temperature below its gelling temperature;

094444.01402
20444.4244450
A cont.

5. eliminating the solvent, preferably by evaporation;
6. bring about the crosslinking, preferably by oxidation;
7. where appropriate, eliminating, with successive washes, the oxidizing agent possibly used;
8. impregnating the material which is crosslinked or which is in the process of being crosslinked, using a solution of at least one plasticizer (for example: glycerol, low molecular weight polyethylene glycol);
9. drying the crosslinked material;
10. cutting the material to the size for use;
11. sterilizing the crosslinked material by radiation.

46. A process for preparing a means, in a nonsolid form which is crosslinkable and/or at least partly crosslinked and which can be applied and/or implantable onto and/or into a support, for preventing post-surgical adhesions, characterized in that it comprises the following essential steps:

1. preparing a solution, preferably an aqueous solution, of crosslinkable precursor of modified collagenic peptide;
2. packaging the solution sterilely under an inert atmosphere.

47. A process for preparing a means, in a nonsolid form which is crosslinkable and/or at least partly crosslinked and which can be applied and/or implantable onto and/or into a support, for preventing post-surgical adhesions, characterized in that it comprises the following essential steps:

1. preparing a solution, preferably an aqueous solution, of crosslinkable precursor of modified collagenic peptide;

2. filtering this solution so as to extract therefrom the elements which are greater than or equal to 0.8 μm , preferably greater than or equal to 0.45 μm , and even more preferably greater than or equal to 0.22 μm in size;
3. concentrating the solution;
4. packaging the solution sterilely under an inert atmosphere.

48. The process according to claim 47, characterized in that the packaged solution is applied onto a support and in that crosslinking is brought about, using a biocompatible oxidizing agent.

49. The process according to claim 48, characterized in that the packaged solution is applied onto a support and in that crosslinking is brought about, using a biocompatible oxidizing agent.

REMARKS

The claims have been amended to delete all multiple dependencies.

Respectfully submitted.

8/28/01

Date

Thomas J. Oppold

Thomas J. Oppold
Reg. No. 42,054

HENDERSON & STURM LLP
206 Sixth Avenue
Suite 1213
Des Moines, Iowa 50309-4076
Telephone: (515) 288-9589
Telefax: (515) 288-4860